USSR

SANKOVSKIY, Ye. A., Voprosy teorii avtomatichekogo upravleniya (Questions in the Theory of Automatic Control), Moscow, "Vysshaya Shkola," 1971, 231 pp

Chapter I: Statistical Analysis of Linear Automatic Control Systems
   1.1. General Information Concerning Random Processes
   1.2. Passage of Random Effects Through Linear Automatic Control Systems
   1.3. Methods of Determining Errors in Linear Automatic Control Systems Caused by Stationary Random Effects

Chapter II: Statistical Synthesis of Linear Automatic Control Systems
   2.1. General Information Concerning the Synthesis of Automatic Control Systems and Criteria of Optimality
   2.2. Synthesis of Automatic Control Systems With a Given Structural Circuit
   2.3. Synthesis of Automatic Control Systems With an Arbitrary Structural Circuit
   2.4. Synthesis of an Optimal System With Finite Memory
   2.5. Several Characteristics of Analysis and Synthesis of Non-stationary Automatic Control Systems Under Random Effects

2/3

USSR

SANKOVSKIY, Ye. A., Voprosy teorii avtomatichekogo upravleniya (Questions in the Theory of Automatic Control), Moscow, "Vysshaya Shkola," 1971, 231 pp

USSR

UDC: 62-55

SANKOVSKIY, Ye. A., KRUGLIKOV, V. V.

"An Optimizer"

USSR Author's Certificate No 314191, filed 10 Dec 69, published 2 Dec 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7A172 P)

Translation: An optimizer is proposed for an adaptive automatic control system. The optimizer contains a control device, an actuator, a device for determining the derivative, and commutation relays. The unit is simplified, and its reliability and interference immunity are improved by making the control unit in the form of a multivibrator with one arm connected through a differential network to one of the actuator inputs, while the other arm is connected through a capacitor to the windings of the first and second commutation relays and through the differential network to the windings of the third relay.

1/1

USSR

UDC:

LYUBIMOV, V. N. and SANNIKOV, D. G., Institute of Crystallography of the USSR
Academy of Sciences, Moscow

"Surface Electromagnetic Waves in Uniaxial Crystals"

Abstract: The authors study surface polarization waves (electromagnetic waves
in quasistatic approximation) in uniaxial crystals for arbitrary direction pro-
pagation and various crystal sections. It is shown that two branches of surface
waves can exist under given conditions. A figure is given showing the frequen-
cies of two branches of surface polarization waves as a function of the angles θ
and φ. In particular cases the authors study surface electromagnetic waves of
various types in magnetic and nonmagnetic, uniaxial dielectrics. The authors
thank V.M. Agranovich and V.L. Ginzburg for their advice and discussion of the
results. Original article: two figures, 26 formulas, and five bibliographic
entries.

1/1

1/2   012   UNCLASSIFIED   PROCESSING DATE---13NOV70
TITLE--SECOND ORDER PHASE TRANSITIONS THAT ARE CLOSE IN TEMPERATURE -U-

AUTHOR-(02)-LEVANYUK, A.P., SANNIKOV, O.G.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P. 68-70 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SECOND ORDER PHASE TRANSITION, TRANSITION TEMPERATURE, PHASE
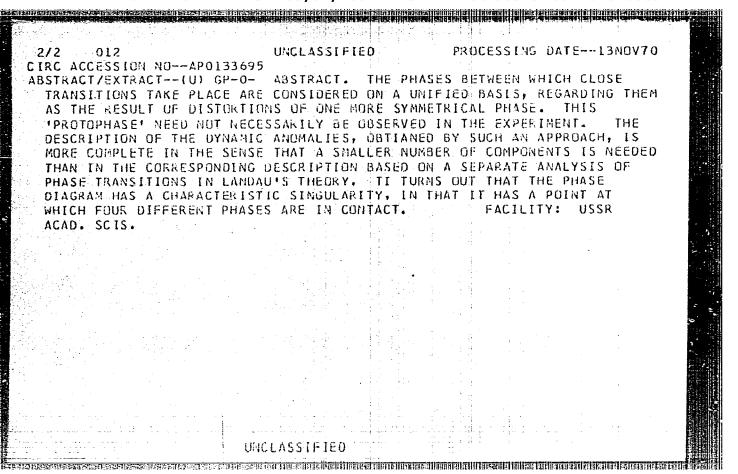 DIAGRAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1790   STEP NO--US/0000/70/011/001/0068/0070

CIRC ACCESSION NO--AP0133695
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0133695
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASES BETWEEN WHICH CLOSE
  TRANSITIONS TAKE PLACE ARE CONSIDERED ON A UNIFIED BASIS, REGARDING THEM
  AS THE RESULT OF DISTORTIONS OF ONE MORE SYMMETRICAL PHASE. THIS
  'PROTOPHASE' NEED NOT NECESSARILY BE OBSERVED IN THE EXPERIMENT. THE
  DESCRIPTION OF THE DYNAMIC ANOMALIES, OBTIANED BY SUCH AN APPROACH, IS
  MORE COMPLETE IN THE SENSE THAT A SMALLER NUMBER OF COMPONENTS IS NEEDED
  THAN IN THE CORRESPONDING DESCRIPTION BASED ON A SEPARATE ANALYSIS OF
  PHASE TRANSITIONS IN LANDAU'S THEORY. TI TURNS OUT THAT THE PHASE
  DIAGRAM HAS A CHARACTERISTIC SINGULARITY, IN THAT IT HAS A POINT AT
  WHICH FOUR DIFFERENT PHASES ARE IN CONTACT.   FACILITY: USSR
  ACAD. SCIS.

UNCLASSIFIED

MAGNETIC ANISOTROPY AND MAGNETIZATION PROCESSES
IN STRONTIUM-ZINC HEXAGONAL FERRITES

Perekalina, T. M.; Shchurova, A. D.;
Sannikov, D. G.; Fonton, S. S.

Qualitative changes in the torque curves with increase of magnetic field strength and the presence of two minima in the magnetic anisotropy energy. i. e. the existence of two easy magnetization directions, are experimentally observed in single crystals of the hexagonal ferrites $Sr_2Zn_2Fe_{12}O_{22}$ and $Sr_3Zn_2Fe_{24}O_{41}$. A model of two magnetic sublattices with weak exchange interaction between them is employed for explaining the experimental data.

//

REEL/FRAME
19762062

USSR

UDC 632.954

MOTUZINSKIY, N. F., VNIIFINTOKS, All-Union Scientific Research Institute of Hygiene and Toxicology, and SANNIKOV, G. P.; Chief of Sector, Northern Scientific Research Institute of Hydrotechnical Engineering and Amelioration

"AN Effective Arboricide"

Moscow, Zashchita Rasteniy, Vol 17, No 6, 1972, p 32

Abstract: 25% granulated phenuron (dibar) was applied as a soil arboricide in the amount of 5- kg active substance per ha to eliminate in a meadow in Leningrad Oblast' growths of alder and willow eith an admixture of birch, aspen, and spruce. Sloping canal banks overgrown with willow, alder, pine, and trees of other species were also treated. As a result of the treatment with phenuron, birch, aspen, and spruce died off to 100%, pine and alder to 98-100%, and willow to 95-100%. Phenuron did not contaminate the water of the canals to a dangerous extent or remain in excessive amounts in the soil after rain fall. However, the content of phenuron in the upper 5 cm layer of the soil during the dry weather before the rains amounted to 50, 28.3, and 8.3 mg/kg on the 1st, 5th, and 10th day after application, respectively. This exceeded the upper permissible limit. It is advisable not to use areas treated with granulated phenuron for the grazing or herding of cattle during the year in which this agent has been applied.
1/1

USSR

UDC 632.954:631.612

SANNIKOV, G. P., Northern Scientific-Research Institute of Hydrotechnology and Melioration

"Destruction of Arboreal-Fruticose Growth on Meliorative Channels by Means of Dibar"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 12, Dec 70, pp 46-48

Abstract: Northwestern regions of the Russian FSR are drained by a system of small channels. Most of them have been deformed and grown over by vegetation. Dibar has been used successfully to clear those channels of the vegetation, using 50 kg of the agent per hectare. This treatment is recommended both for routine upkeep of the channel system and for its restructuring. Best effect of the chemical is obtained on level sections; on inclined areas considerable quantity of dibar is washed off by ground water before affecting the growth. To destroy the arboreal-fruticose growth completely, it is recommended to follow up the action of dibar by a treatment with oil solutions of 2,4-D and 2,4,5-T, so that the plants surviving previous treatment would be destroyed.

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USSR

UDC 632.95.028

BURYY, V. S., GOSHKA, A. T., KUDEVICH, S. N., SANNIKOV, G. P., and GUBAREVA,
K. P., All Union Scientific Research Institute of Hygiene and Toxicology of
Pesticides, Polymers, and Plastic Masses, and Northern Scientific
Research Institute of the Hydrotechnology and Development

"Residues of Herbicides Used in Clearance of Canals Found in Outside Environ-
ment"

Abstract: Canal characteristics are reported and the effectiveness of granu-
lated herbicides monuron, diuron, and symazine against water plants.
The residue of these preparations was studied in water and in soil at various
distances from the site of introduction, as well as in plants and fish. It
has been established that monuron is the most promising herbicide for the
utilization in the zone of non-black soil considering the aspects of the sani-
tation-hygienic evaluation and the phytotoxic properties.

1/1

1/2   011   UNCLASSIFIED   PROCESSING DATE--11DEC70
TITLE--RESULTS OF EXPERIMENTATION ON GRANULATED ARBORICIDES -U-

AUTHOR--SANNIKOV, G.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KHIMIYA V SEL'SKOM KHOZYAYSTVE, VOL 8, NO 4 (78), APR 70,
  PP 49-51
DATE PUBLISHED----APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, GRANULE FORMATION, FORESTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605014/C10 STEP NO--UR/0394/70/008/004/0049/0051

CIRC ACCESSION NO--AP0140481
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0140431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GRANULATED PHENURON AND MONURON MAY BE UTILIZED FOR DESTRUCTION OF UNDESIRABLE ABOREAL UNDERGROWTH ON UNCULTIVATED GROUNDS SUCH AS DEVELOPMENT CANALS, ROADSIDES, ELECTRIC POWER LINES, ETC. PHENURON IS A MILDER AGENT THAN MONURON IN RESPECT TO PERENNIAL GRASSES. IT MAY ALSO BE USED TO DESTROY INDIVIDUAL TREES AND SMALL CURTAINS ON NATURAL FEEDING AREAS, BUT SHOULD NOT BE USED IN AREAS WHERE THE PLANTS TO BE DESTROYED GROW TOGETHER WITH VALUABLE TREES AND PLANTS. AS AN ARBORICIDE AND AN ALL AROUND HERBICIDE, MONURON MAY BE USED IN MODERATE AND EVEN EXCESSIVE HUMIDITY ZONES, IN PREPARATION OF WATER RESERVOIR BEDS BEFORE FLOODING, ON ELECTRIC POWER LINES, ALONG ROADSIDES, ETC. OPTIMAL DOSES, SCHEDULES AND METHODS OF APPLICATION OF THE AGENTS SHOULD BE ADJUSTED TO INDIVIDUAL SOIL CLIMATE CONDITIONS. FACILITY: NORTHERN SCIENTIFIC RESEARCH INSTITUTE OF HYDROTECHNICS AND MELIORATION, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 632.954

SANNIKOV, G. P., Northern Scientific Research Institute of Hydrotechnics and Melioration, Leningrad, State Committee for Water Economy RSFSR

"Results of Experimentation on Granulated Arboricides"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 4 (78), Apr 70, pp 49-51

Abstract: Granulated phenuron and monuron may be utilized for destruction of undesirable arboreal undergrowth on uncultivated grounds such as development canals, roadsides, electric power lines, etc. Phenuron is a milder agent than monuron in respect to perennial grasses. It may also be used to destroy individual trees and small curtains on natural feeding areas, but should not be used in areas where the plants to be destroyed grew together with valuable trees and plants. As an arboricide and an all around herbicide, monuron may be used in moderate and even excessive humidity zones, in preparation of water reservoir beds before flooding, on electric power lines, along roadsides, etc. Optimal doses, schedules and methods of application of the agents should be adjusted to individual soil-climate conditions.

1/1

USSR

UDC: 621.371.1

SANNIKOV, V. I.

"Reflection of Electromagnetic Waves in the Centimeter Band From the Agitated Surface of the Sea"

Tr. TsNII Mor. flota (Works of the Central Scientific Research Institute of the Marine Fleet), 1970, vyp. 124, pp 127-134 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A230)

Translation: The author presents a survey of theoretical and experimental studies of reflection of electromagnetic waves in the centimeter range from the perturbed surface of the sea in the case of small glide angles. The following points are taken up: the effective scattering surface as a function of the glide angle; the effect of the state of the surface of the sea on the relationship between the effective scattering surface and the angle of glide; the effect of radar parameters on the effective scattering surface; theoretical models of the mechanism of reflection of radio waves from the surface of the sea. The following conclusions are drawn: the results of the works surveyed do not allow any definite conclusions on the mechanism of scattering; not one

1/2

USSR

SANNIKOV, V. I., Tr. TsNII Mor. flota, 1970, vyp. 124, pp 127-134

of the proposed models takes account of the fact that some sec-
tions of the surface of the sea flow into other sections at low
glide angles; no study has been done on the problem of the sepa-
rate effect of large wind waves and their surface irregularities
on the coefficient of scattering; the mechanism of the polariza-
tion dependence of the coefficient of scattering has been inade-
quately studied.   V. S.

2/2

USSR

UDC 8.74

PASIKA, L. I., SANNIKOV, V. N., POSOKHOVA, N. A.

"System of Standard Operators for Algorithmizing and Programming Economic Problems"

V sb. Probl. sistemotekhniki. Vyp. 1 (Problems of Systems Engineering. Vyp. 1--collection of works), Sudostroyeniye, 1972, pp 154-167 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V444)

Translation: A procedure is described for selecting the system of standard operators for algorithmizing and programming economic problems. The basis for the procedure is the criterion of reducing the expenditures of time on programming with restrictions on the computation time and the ready-access memory size of the computer. The standard operator system comprises the following: 1) the file input operators (the file in machine code from the ready-access memory, the formation of annotations in the information file, the writing of the annotation into the information library catalog; 2) groups of decision operators (information search, preparation of it for operation in the nonstandard module, output to the nonstandard module, conversion and allocation of the results); 3) the groups of sorting operators (ordering the files in the ready-access memory and in the external memory by a given word); 4) the groups of control operators (the memory allocation, the control of the solution of the problem flow);
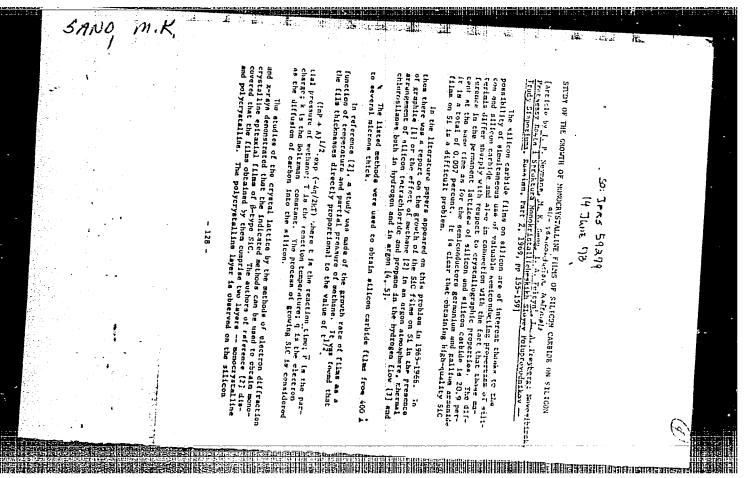
1/2

USSR

PASIKA, L. I., et al., _Probl. sistemotekhniki._ _Vyp. 1_, Sudostroyeniye, 1972,
pp 154-167

5) the group of servicing operators (symbol-by-symbol processing of the anno-
tation, editing, symbol-by-symbol processing of the sentence). Examples of al-
gorithmization and programming problems in the standard operator system are
presented. The bibliography has 3 entries.

2/2

So: Jprs 59379
14 June 73

STUDY OF THE GROWTH OF MONOCRYSTALLINE FILMS OF SILICON CARBIDE ON SILICON

[Article by I. P. Neumann, M. K. ...; Leningrad, Semiconductor Materials, Trudy; Simpoziuma, Russian, Part 2, 1969, pp 155-159]

The silicon carbide films on silicon are of interest thanks to the possibility of simultaneous use of valuable semiconducting properties of silicon and silicon carbide and also in connection with the SiC films. The materials differ sharply with respect to crystallographic properties of silicon in the permanent lattices of silicon and silicon carbide. The difference in the permanent lattices of silicon and silicon carbide is 20.9 percent at the same time as for the semiconductors germanium and gallium arsenide it is a total of 0.007 percent. It is clear that obtaining high-quality SiC films on Si is a difficult problem.

In the literature papers appeared on this problem in 1965-1966. In them there was a report on the growth of the SiC films on Si in the presence of graphite [1] or the effect of methane [2] in an argon atmosphere, thermal arrangement of silicon tetrachloride and propane in the hydrogen flow [3] and chlorosilanes, both in hydrogen and in argon [4, 5].

The listed methods were used to obtain silicon carbide films from 400 Å to several microns thick.

In reference [2], a study was made of the growth rate of films as a function of temperature and partial pressure of methane. It was found that the film thicknesses directly proportional to the value of $t^{1/2}$.

$(nP + A)^{1/2}, \exp(-4n/2kT)$ where t is the reaction time; F is the partial pressure of methane; T is the reaction temperature; q is the electron charge; k is the Boltzmann constant. The process of growing SiC is considered as the diffusion of carbon into the silicon.

The studies of the crystal lattice by the methods of electron diffraction and x-rays demonstrated that the indicated methods can be used to obtain monocrystalline epitaxial films of β-type SiC. The authors of reference [2] discovered that the films obtained by them comprise two layers — monocrystalline and polycrystalline. The polycrystalline layer is observed on the silicon.

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USSR   UDC 533.9:538.561

YEROFEYEV, V. S., SANOCHKIN, YU. V., and FILIPPOV, S. S.

"Electrical Layer Near the Anode in a Discharge With Transverse Magnetic Field"

Minsk, Kolebaniya i Volny v Plazme. (Oscillations and Waves in a Plasma), "Nauka i Tekhnika," 1971, pp 49-52

Abstract: The authors examine the problem of the distribution of potential and concentration of charged and neutral particles in the electric field near the anode forming in a discharge with a strong transverse magnetic field. They investigate the case of an independent discharge by allowing for the intake and burn-up of the neutral gas. The question concerning the probability of ionization of the neutral atoms in the layer is discussed, and solutions are also found for other charge conditions. The authors use equations to prove their solution and illustrate their findings graphically on two figures. Figure 1 shows the potential distribution andF Figrue 2 shows the character-istics of the neutral atoms. The article contains 2 illustrations and 5 bibliographic entries.

1/1

USSR
                        UDC: 533.951.2/.3

YEROFEYEV, V. S., SANOCHKIN, Yu. V.

"Ionization Instability of a Self-Sustaining Discharge in a Strong Transverse Magnetic Field"

V sb. Kolebaniya i volny v plazme (Oscillations and Waves in a Plasma--collection of works), Minsk, "Nauka i tekhn.", 1971, pp 24-27 (from RZh--Mekhanika, No 7, Jul 71, Abstract No 7B183)

Translation: A theoretical study is made of the problem of stability of the layer near the anode formed in a self-sustaining discharge with magnetized electrons and unmagnetized ions. For long-wave perturbations with a period of oscillations much greater than the time of flight of ions, the problem is solved for eigenvalues. It is shown that with a rise in pressure when there is a change from "vacuum" conditions to a mode with intense ion production, discharge becomes unstable. The authors determine the critical concentration of neutral particles, which depends only on the kind of gas and is proportional to the magnitude of the magnetic field. The frequency region in which instability develops is found and the instability mechanism is discussed. The theory is compared with experimental data. Authors' abstract.

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USSR

UDC 577.1:615.7/9

SANOTSKIY, I. V.

"Results of and Prospects for Research on Physiological Adaptation and Temporary Compensation of Chronic Pathology During Minimal Chemical Actions"

V sb. Farmakol. Khimoterapevt. sredstva. Toksikol. Probl. toksikol. (Pharmacology. Chemotherapeutic Agents. Toxicology. Problems of Toxicology -- Collection of Works), Vol 5 (Advances in Science and Technology. All-Union Institute of Scientific and Technical Information, USSR Academy of Sciences), Moscow, 1973, pp 41-48 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73, Abstract No 17 F1896 by the author)

Translation: The maximum permissible concentrations suitable for different environments are determined. The stages of research on adaptation to chemical actions and the boundaries between the phenomena of adaptation and compensation are described.

1/1

Pharmacology and Toxicology

USSR

Editors -- Professor LETAVET, A. A. and Doctor of Medical Sciences Professor SANOTSKIY, I. V.

Printsipy i Metody Ustanovleniya Predel'nykh Dopustimykh Kontsentratsiy Vrednykh Veshchestv v Vozdukhe Proizvodstvennykh Pomesheniy. Materialy Mezhdunarodnogo Seminara Uchenykh Sotsialisticheskikh Stran 25-29 Noyabrya 1968. (Principles and Methods of Establishing Maximum Allowable Concentration of Toxic Substances in the Air of Industrial Premises. Data on the International Seminar of Scientists of Socialist Countries held 25-29 November 1968), Moscow, "Meditsina," 1970, pp 204-205

Translation:

Table of Contents:

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USSR

Editors -- LETAVET, A. A. and SANOTSKIY, I. V., "Meditsina," 1970, pp 204-205

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SANOVICH, A. N.

Space Res.

Astronomical Observations from Lunar Surface

The equal altitudes method is one of the most promising to any analysis of the possible methods for determining positions on the moon. In this paper the authors examine the problems involved in determining the coordinates of points on the lunar surface and more precisely determining the parameters of lunar rotation when applying the equal altitudes method. In analyzing these problems one must take into account the singular conditions involved in astrometric observations from the lunar surface: 1) the virtually complete absence of an atmosphere, and therefore an absence of refraction and absorption of light rays; 2) slowness of the diurnal rotation of the celestial sphere, making one rotation in 27.3 terrestrial days; 3) low gravity. With the equal altitudes method it is possible to observe celestial bodies at a great zenith distance and at any time during the lunar day. With the equal altitudes method it is possible to observe stars near the zenith ... to great advantage because there is a considerable increase in the total number of stars needed for observations can be ... the stipulated time interval. This decrease makes it possible to avoid observation of faint stars. In addition, at a great zenith distance there ...

- 4 -

In a narrowing of the range of azimuths within which there is a considerable deterioration in the accuracy of observations due to the motion of an observed star at a very acute angle to the stipulated almucantar, also diurnal rotation of the lunar celestial sphere dictates the choice of the method and the procedure for astrometric observations. The times of star transit through the almucantar must be registered with a lesser accuracy than in similar observations from the earth. In addition, low lunar gravity, instrumental errors increase, especially due to deteriorated operation of levels. The latter circumstance must be taken into account in developing the design of an astrometric instrument. The authors examine the theoretical principles of the equal altitude method for the case of determining selenographic latitude and longitude and also in determining the inclination I of Cassini's equator to the ecliptic and the parameter f of lunar physical libration.

USSR

KOSILOV, S. A., Professor, Doctor of Biological Sciences, Scientific Research
Institute of the Physiology of Children and Juveniles, Academy of Pediatric
Sciences USSR, and SANOYAN, G. G., Docent, Candidate of Pedagogical Sciences,
Moscow Aviation Institute

"Significance of Quantitative Characteristics of the Dominant in Work and
Sport"

Abstract: After reviewing literature on the development, maintenance, dis-
turbance, and extinction of concentration on skill-requiring jobs or physical
exercises, the authors present and analyze the results of their original
study performed on radio-assembly factory workers whose task was to put
several parts together and then spot-weld them. Since power was delivered
into the welding machine by depressing a foot pedal, the number of pedal
depressions per unit time was taken as the index of concentration and labor
productivity. The plot of the productivity index over a work day yielded a
biphasic curve in the presence and absence of distracting factors. The rise
of the curve is interpreted as warming up, the fall as fatigue. After the
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USSR

KOSILOV, S. A. and SANOYAN, G. G., Teoriya i Praktika Fizicheskoy Kul'tury,
No 6, 1971, pp 46-51

lunch break, the two subphases are present again, but the peak of productivity
is much lower than that in the midmorning. During performance of other types
of work, the curve may be monophasic with the peak occurring in midday, it
may rise continuously, or it may assume several other characteristic shapes.
Individual differences are discussed and equations for idealized curves are
presented.

2/2

USSR

SANSAYEV, YU. A. and FEDOSEYEV, N. M.

"Particulars Associated With the Vibration of Turbine Units With High-Speed Integrated Bearings"

Translation: It is proposed that turbine machines be designed with integrated bearings. Methods are indicated for determining the elasticity characteristics of integrated bearings along with the selection of critical turbine rotor speeds while taking into consideration the elastic pliability of ball bearing supports. The problem associated with decreasing the magnitude of initial rotor disbalance is considered. The results presented make it possible to systematize the basic reasons responsible for the vibration of turbine machines with integrated bearings and to determine the frequency spectra of these vibrations. Original article: 4 illus., 10 bibl. entries.

1/1

USSR

UDC 546.791.6-536.66

SANTALOVA, N. A., VIDAVSKIY, L. M., DUNAYEVA, K. M., and IPPOLITOVA, YE. A.

"Enthalpy of Formation of Uranium Trioxide Semihydrate"

Abstract: The calorimetric method was used to measure the enthalpy of the reaction of two specimens of uranium trioxide semihydrate with the composition $UO_3 \cdot 0.393H_2O$ and $UO_3 \cdot 0.648H_2O$ with a solution of hydrofluoric acid. At $298.15^\circ K$ this enthalpy was -21.76 ± 0.08 and -20.83 ± 0.110 kcal/g-atom of U respectively. The enthalpy of the formation of compounds belonging to the uranium trioxide semihydrate phase from uranium trioxide and water as a function of the composition is represented by a linear equation. For a stoichiometric compound this value is -3.19 ± 0.10 kcal/g-atom of U. The published data were used to calculate the standard enthalpy of formation of uranium trioxide semihydrate from the elements. This enthalpy at $298.15^\circ K$ was -333.15 ± 0.46 kcal/g-atom of U. The method used to synthesize the uranium trioxide semihydrate and the chemical and x-ray phase analysis data are presented in connection with the existence of several versions of the semihydrate.

1/1

USSR

SANTALOVA, N. A., VIDAVSKIY, L. M., DUNAYEVA, K. M., and IPPOLITOVA, Ye. A.

"Heat of Formation of Uranium Trioxide Dihydrate"

Abstract: An independent determination of the heat of formation of $UO_3 \cdot 2H_2O$ was carried out on the basis of the heat of formation of uranium hexafluoride in order to be able to compare the value obtained with that determined from the heat of the formation of a mixed uranium oxide. In the paper the experimental conditions are described in detail, followed by data of X-ray analysis and formulas used in calculation of the enthalpy. The value obtained differed from that based on mixed oxides. No systematic errors could be found, and the authors conclude that the discrepancy is due to the disagreement among the fluorine and oxygen calorimetry data.

1/1

USSR   UDC 550.837:622.241

SANTO, K. L., GAYDASH, A. D., Volga-Ural Affiliate of the All-Union Scientific
Research Institute of Geophysical Prospecting Methods

"A Device for Induction Well Logging"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 19,
1970, Author's Certificate No 272449, p 63

Abstract: This author's certificate introduces a device for induction well
logging which contains a multiple-coil probe with master and reception circuits,
an AC oscillator connected to the master circuit of the probe, and a measurement
channel in the form of the probe reception circuit, an amplification and rectify-
ing device, a cable communications line and a well logging registration unit all
connected in series. As a distinguishing feature of the patent, the protection
of the measurements from interference is improved and provision is made for re-
cording a quantity inverse to the signal amplitude. The device is equipped in
the measurement circuit with elements of a pulse-frequency telemetry system. The
demodulator is made in the form of meters which measure the pulse repetition
frequency and period.

1/1

1/2   021

TITLE--SOLID SOLUTIONS IN THE Y SUB2 SI SUB2 O-CE SUB2 SI SUB2 O SUB7 SYSTEM -U-

PROCESSING DATE--16OCT70

AUTHOR-(04)-TOROPOY, N.A., ANDREYEV, I.F., SOKOLOV, A.N., SANZHAREVSKAYA, L.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 519-23

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLID SOLUTION, YTTRIUM COMPOUND, SILICON COMPOUND, CERIUM COMPOUND, OXIDE, IR SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0841

CIRC ACCESSION NO--AP0118017

STEP NO--UR/0363/70/006/003/0519/0523

CIRC ACCESSION NO--AP0118017
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITHIN THE COMPN. RANGE Y SUB2 SI
  SUB2 O SUB7-Y SUB1.8 NEGATIVE CE SUB0.2 SI SUB2 O SUB7, SAMPLES WERE
  SYNTHEXIZED EVERY 0.5 MOLE PERCENT. THE SAMPLES WEREE SYNTHESIZED AT
  1350-1450DEGREES BOTH IN A REDUCING ATM. AND IN A SILIT FURNACE. THE
  PHASE COMPN. OF THE PRODUCTS OBTAINED WAS STUDIED BY CRYSTALLO OPTICAL
  ANAL., AND X RAY DIFFRACTION, AND IR SPECTROSCOPY. THE FOLLOWING CRYST.
  PHASES WERE PRESENT: SOLID SOLNS. WITH THE STRUCTURES BETA Y SUB2 SI
  SUB2 O SUB7 (COMPNS. Y SUB2 SI SUB2 O SUB7-Y SUB1.97 CE SUB0.03 SI SUB2
  O SUB7), ALPHA Y SUB2 SI SUB2 O SUB7, AND A REGION OF SOLID SOLNS.
  DESIGNATED AS Y SUB2 SI SUB2 O SUB7 SOLID SOLNS. THE CRYSTAL STRUCTURE
  OF THE LAST SOLID SOLN. IS APPARENTLY IDENTICAL TO THE I PRIME TYPE
  STRUCTURE OF THE DIORTHOSILICATES. DUE TO THE WEAK CRYSTN. OF THE
  SAMPLES PREPD. BY SOLID PHASE SYNTHESIS, THE HOMOGENEITY REGION OF SOLID
  SOLNS. WITH THE BETA Y SUB2 SI SUB2 O SUB7 STRUCTURE WAS DETD. ON THE
  BASIS OF IR ABSORPTION SPECTRA. THE ALPHA Y SUB2 SI SUB2 O SUB7 CAN BE
  PREPD. BY QUENCHING THE SAMPLES AT GREATER THAN 1350DEGREES. THERE IS A
  REVERSIBLE BETA Y SUB2 SI SUB2 O SUB7 IN EQUILIBRIUM ALPHA Y SUB2 SI
  SUB2 O SUB7 PHASE TRANSITION AT 1300-1400DEGREES. THE CE SUB2 SI SUB2 O
  SUB7 M. CONGRUENTLY AT 1770DEGREES AND DOES NOT UNDERGO POLYMORPHIC
  PHASE TRANSFORMATIONS. THE NS AND THE D. OF THE COMPNS. OF THE SYSTEM
  WERE DETD. ALSO DETD. WERE THE LIQUIDUS SOLIDUS CURVES FOR THE Y SUB2
  SI SUB2 O SUB7-CE SUB2 SI SUB2 O SUB7 SYSTEM.   FACILITY:
  LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

                        UNCLASSIFIED

1/2   010
UNCLASSIFIED
TITLE--POTASSIUM METAPHOSPHATE,POTASSIUM PYROPHOSPHATE,POTASSIUM
METAVANADATE TERNARY SYSTEM -U-
PROCESSING DATE--13NOV70

AUTHOR-(02)-BERGMAN, A.G., SANZHAROVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1139-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, VANADATE, POTASSIUM COMPOUND, EUTECTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1119

STEP NO--UR/0078/70/015/004/1139/1140

CIRC ACCESSION NO--AP0123111
UNCLASSIFIED

CIRC ACCESSION NO--AP0123111   UNCLASSIFIED   PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BINARY SYSTEMS KVO SUB3-K SUB4
P SUB2 O SUB7 AND KVO SUB3-KPO SUB3 FORM THE CORRESPONDING COMPOS. 3KVO
SUB3 .2K SUB4 P SUB2 O SUB7, INCONGRUENTLY M. 518DEGREES, AND KVO SUB3
.KPO SUB3 AND 2KVO SUB3 .KPO SUB3 CONGRUENTLY M. 488DEGREES AND
478DEGREES, RESP. THE 1ST SYSTEM FORMS A EUTECTIC AT 77.5 MOLE PERCENT
KVO SUB3 AND 464DEGREES AND THE 2ND SYSTEM FORMS 2 EUTECTICS, AT 42.5
AND 60 MOLE PERCENT KVO SUB3 AND 428 AND 426DEGREES, RESP. THE PHASE
DIAGRAM OF THE TERNARY SYSTEM IS PRESENTED. THE SYSTEM HAS 3 EUTECTICS
M. 400, 410, AND 420DEGREES AND CONTG. KVO SUB3 .KPO SUB3 MOLE PERCENT
RATIO 37-46, 53-35.5, AND 64-25, RESP. INVARIANT POINTS OF THE TERNARY
SYSTEM ARE TABULATED.   FACILITY: ROSTOV, INZH.-STROIT. INST.,
ROSTOV, USSR.

UNCLASSIFIED

USSR

PASECHNIK, M. V., KORZH, I. A., KASHUBA, I. Ye., MISHCHENKO, V. A., PRAVDIVYY, N. M., and SANZHUR, I. Ye., Institute of Physics of the Academy of Sciences Ukrainian SSR

"Study of the Elastic Scattering of Neutrons in the 0.3-4.1 Mev Energy Region by Ti and Cr Nuclei Using the Optical Model of the Nucleus"

Moscow, Yadernaya Fizika, Vol 11, No 5, May 70, pp 958-966

Abstract: The angular distributions of neutrons elastically scattered by Ti and Cr nuclei were measured over the angles 20-145° for neutron energies 2, 2.5, and 3 Mev, and data are given on the polarizing capacity of these nuclei for neutron energies of 1.5 and 2.0 Mev. The data are compared with the angular distributions of elastically scattered neutrons and with polarization occurring under elastic scattering as calculated on the basis of the six-parameter optical model of the nucleus. The purpose of this comparison was to make a systematic study of the variation with energy of the parameters of the optical potential, which function describes the interaction between the neutron and the nucleus. The values of the optimal parameters V_c and W_c were obtained by a least-squares fitting of data on the angular distributions of elastically scattered neutrons. 1/2

USSR

A comparison of calculated and experimental total cross sections showed satis-
factory agreement between the two. The values of the optimal parameters of the
optical model were calculated by a three-parameter analysis; the forms of the
angular distributions calculated by the three-parameter variation method did
not greatly differ from the angular distributions calculated with a two-para-
meter variation. This is said to indicate that the parameters of the optical
potential most sensitive to the magnitude and form of the angular distributions
are the values of the real and imaginary parts of the central potential.

2/2

63

1/2   016   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--STABILITY OF MOTION OF A BODY OF VARIABLE MASS CONTAINING CAVITIES
   ENTIRELY FILLED WITH A FLUID -U-
AUTHOR-(02)-IMANBAYEVA, L.KH., SAPA, V.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK KAZAKHSKOI SSR, IZVESTIIA, SERIIA FIZIKO
   MATEMATICHESKAIA, VOL. 8, JAN.-FEB. 1970, P 66-69
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MOTION STABILITY, MOTION EQUATION, ROTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1498   STEP NO--UR/0361/70/008/000/0066/0069

CIRC ACCESSION NO--AP0118485
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0118485
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF SUFFICIENT
  CONDITIONS OF STABILITY OF MOTION OF A SOLID BODY OF VARIABLE MASS
  CONTAINING CAVITIES ENTIRELY FILLED WITH AN IDEAL FLUID ABOUT A
  STATIONARY POINT. USING AMINOV'S (1959) METHOD, CONDITIONS ARE OBTAINED
  UNDER WHICH THE SOLUTION TO THE EQUATIONS FOR THE ROTATION OF THE BODY
  ABOUT AN AXIS OF SYMMETRY IN A VERTICAL POSITION WILL BE STABLE
  ACCORDING TO THE WELL KNOWN THEOREM OF LIAPUNOV CONCERNING STABILITY.

UNCLASSIFIED

USSR   UDC   621.373.826

GANDEL'MAN, I. L. SAPA, V. T., TEKHONOV, YE. A., and SHPAK, M. T.

"Transient Generation of Organic Dye Solutions During Picosecond Optical Pumping"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics — collection of works), Vyp.2, Novosibirsk, 1972, pp 70-74 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D148)

Translation: None.

1/1

TITLE--GENERALIZED SHWARTZMAN PHENOMENON IN RESPONSE TO ADMINISTRATION OF
  ASCARID TISSUE EXTRACTS -U-
AUTHOR--SAPACH, V.K.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL
  39, NR 2, PP 201-205
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WORM, ANIMAL PARASITE, HYPOTENSION, BLOOD COAGULATION, MEDICAL
  EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0440   STEP NO--UR/0358/70/039/002/0201/0205

CIRC ACCESSION NO--AP0117676
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0117676

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRAVENOUS INOCULATION OF AN
EXTRACT OF HUMAN ASCARID A. LUMBRICOIDES (IN 1: 100 DILUTION IN
PHYSIOLOGICAL SALINE) USING 0.05 ML PER KG OF THE WEIGHT OF DOGS AT A 24
HR INTERVAL PRODUCED DEVELOPMENT OF GENERALIZED SHWARTZMAN PHENOMENON
CHARACTERISED BY A LOSS OF ARTERIAL BLOOD PRESSURE WITHIN 15 MIN. AFTER
CONTROL INJECTION AND SOMETIMES ACCOMPANIED BY DEATH OF ANIMALS.
SHORTENING OF THE TIME OF HEMOCOAGULATION FOR 3 HOURS AFTER PREPARATING
AND CHALLENGE INJECTIONS OF THE EXTRACT AND INCREASE IN THE NUMBER OF
LEUKOCYTES BEFORE CHALLENGE INJECTION ARE PROBABLY CONDUCIVE TO THE
DEVELOPMENT OF THIS PHENOMENON. PATHOMORPHOLOGICAL EXAMINATIONS
REVEALING VASCULAR AND HEMOCOAGULATION DISORDERS ALSO CONFIRM THE
DEVELOPMENT OF THE GENERAL SHWARTZMAN PHENOMENON.   FACILITY:
KAFEDRA PATOLOGICHESKOY FIZIOLOGII ROSTOVSKOGO MED. INST.

UNCLASSIFIED

TITLE--INHIBITION OF THE INITIATED OXIDATION OF CUMENE BY MOLECULAR IODINE
-U-

AUTHOR-(03)-ALEKSANDROV, A.L., SAPACHEVA, T.I., DENISOV, YE.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1122-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXIDATION INHIBITION, CUMENE, IODINE
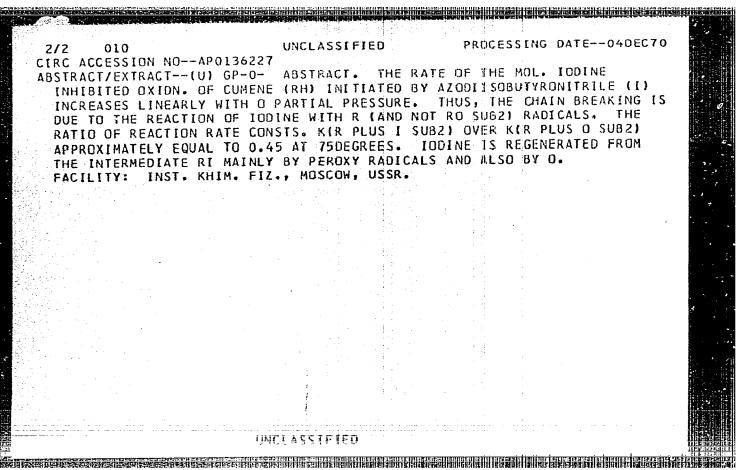
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0793   STEP NO--UR/0076/70/044/004/1122/1124

CIRC ACCESSION NO--AP0136227
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0136227

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF THE MOL. IODINE
INHIBITED OXIDN. OF CUMENE (RH) INITIATED BY AZODIISOBUTYRONITRILE (I)
INCREASES LINEARLY WITH O PARTIAL PRESSURE. THUS, THE CHAIN BREAKING IS
DUE TO THE REACTION OF IODINE WITH R (AND NOT RO SUB2) RADICALS. THE
RATIO OF REACTION RATE CONSTS. K(R PLUS I SUB2) OVER K(R PLUS O SUB2)
APPROXIMATELY EQUAL TO 0.45 AT 75DEGREES. IODINE IS REGENERATED FROM
THE INTERMEDIATE RI MAINLY BY PEROXY RADICALS AND ALSO BY O.
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--BASIC FORMULAS FOR COSMOLOGICAL MODELS WITH MATTER AND RADIATION
  -U-
AUTHOR--SAPAR, A.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 503-508

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--STELLAR EVOLUTION, COSMOGONY, MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/B10 STEP NO--UR/0033/70/047/003/0503/0508

CIRC ACCESSION NO--AP0140253
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0140253

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SHORT REVIEW OF THE RESULTS OF
THE AUTHOR'S FORMER PAPERS ON THE EXACT SOLUTIONS BOTH OF THE EVOLUTION
OF THE UNIVERSE AND OF OBSERVABLE DEPENDENCSES FOR THE CASE OF THE
UNIFORM UNIVERSE, FILLED WITH MATTER AND RADIATION, IS GIVEN. A SHORT,
PARTLY CRITICAL, REVIEW OF THE PAPERS OF OTHER AUTHORS ON THE SAME
TOPICS IS ADDED.   FACILITY: AKADEMIIA NAUK ESTONSKOI SSR,
INSTITUT FIZIKI I ASTRONOMII, TARU, ESTONIAN SSR.

UNCLASSIFIED

USSR

UDC: 537.533.33

KEL'MAN, V. M., SAPARGALIYEV, A. A., and YAKUSHEV, Ye. M., Institute of Nuclear Physics, Alma-Ata

"Theory of Cathode Lenses"

Abstract: Under the general title given above, the present article is the second installment, its title being "Electrostatic Cathode Lenses With Rotational Field Symmetry." The first installment appeared in the journal named above (V. M. Kel'man, et al, No 10, 1972); in it the authors developed a method for classifying various forms of aberration in lenses of rotational field symmetry. In the present installment, the authors demonstrate how the method is used to find all aberrational coefficients in a form characteristic of electronic lenses. Using a cylindrical system of coordinates, the authors obtain a set of equations describing the motion of the charged particles in the field of the electrostatic cathode lens. The equations are solved by the method of successive approximations, and simplified expressions for the aberrational coefficients in the image plane are derived.
1/1

Ya. Babayev, M. Sapargeldiyev

HELMINTHOFAUNA OF OCHOTONA RUFESCENS AND SOME FEATURES
OF ITS DEVELOPMENT IN DIFFERENT AREAS OF KOPETDAG.

260 individuals of (Ochotona rufescens Tromas. 1911) have been investigated
after Skryabin. 16 kinds of helminths have been discovered. The reasons of uneven
infection of Ochotona rufescens by helminths are described.

REEL/FRAME
19791394

TITLE--SOLUBILITY OF CERIUM IN COPPER AND ITS EFFECT ON THE PROPERTIES OF
  BRASSES -U-
AUTHOR--DUISEMALIYEV, U.K., PRESNYAKOV, A.A., SAPAROV, K.S., KOZHAMBERDIN,
  N.A.
COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 36-8, 43

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CERIUM CONTAINING ALLOY, COPPER ALLOY, BRASS, ALLOY
  DESIGNATION, FERROCERIUM, METAL MELTING, PLASTICITY, TENSILE STRENGTH,
  ELECTRIC RESISTANCE/(U)LS642 BRASS, (U)LS591 BRASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1938/1342   STEP NO--UR/0129/70/000/002/0036/0043

CIRC ACCESSION NO--AP0106019
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0106019
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE CU ALLOYS CONTG. CE
  0.03-0.5PERCENT WERE MELTED 3 TIMES IN AR, THE SPECIMENS OBTAINED WERE
  SEALED IN EVACUATED QUARTZ AMPULS AND ANNEALED AT 800DEGREES WITH
  SUBSEQUENT COOLING BY 100DEGREES EVERY 24 HR AND COOLED WITH A FURNACE
  FROM 400DEGREES. MOREOVER, THE ANNEALED ALLOYS CONTG. CE 0.05PERCENT
  WERE HELD IN AMPULS AT 300, 500, AND 800DEGREES FOR 3 HR AND QUENCHED
  FROM THESE TEMPS. IN WATER. THE LS 64-2 AND LS 59-1 BRASSES (CU 63.7
  AND 58.6; PB 1.75 AND 1.05PERCENT, RESP.) CONTG. FERROCERIUM
  0.05-0.5PERCENT WERE INDUCTION MELTED UNDER A CHARCOAL LAYER, HELD IN
  THE MOLTEN STATE FOR 10 MIN, AND CAST INTO CU WATER COOLED MOLDS. CE IS
  SMALLER THAN OR EQUAL TO 0.1PERCENT CAUSES THE REFINEMENT OF CU
  STRUCTURE AND FORMS CU-CE SOLID SOLN. FURTHER INCREASE OF ITS CONCN.
  LEADS TO THE RPTN. OF THE 2ND CECU SUB6 PHASE IN FORM OF POINT
  INCLUSIONS. THIS INDICATES THAT THE MAX. SOLY. OF CE IN CU AT ROOM
  TEMP. IS 0.05PERCENT. THE METALLOGRAPHIC EXAMN. OF THE SPECIMENS
  QUENCHED FROM 300-800DEGREES SHOWED THE MAX. SOLY. OF 0.15PERCENT AT
  800DEGREES. CE IMPROVES THE MECH. PROPERTIES OF CU BUT WHILE ITS ADDNS.
  UP TO 0.5PERCENT INCREASE THE TENSILE STRENGTH 22.5-5.3 KG-CM PRIME2,
  THE PLASTICITY (ELONGATION DELTA AND REDN. IN AREA PSI) INCREASES ONLY
  UP TO CE 0.1PERCENT (UP TO DELTA EQUALS 68, PSI EQUALS 82.5PERCENT) AND
  THEN RAPIDLY FALLS TO IS SIMILIAR TO 30PERCENT (PSI AND DELTA), AT
  0.5PERCENT CE. THE ELEC. RESISTANCE OF ALLOYS INCREASES FROM IS SIMILIAR
  TO 1.75 TIMES 10 PRIME NEGATIVE6 TO IS SIMILIAR TO 2.25 TIMES 10 PRIME
  NEGATIVE5 OMEGA CM AT 0.5PERCENT CE. NO EFFECT OF FERROCERIUM ON THE
  BRASS STRUCTURE WAS NOTICED.
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106019   UNCLASSIFIED   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--ITS ADDNS. MARKEDLY DECREASE PSI OF THE LS 64-2 BRASS AT 20-250DEGREES (FROM SIMILIAR TO 45 TO SIMILIAR TO 37PERCENT FOR 0 AND 0.5PERCENT FERROCERIUM AT 20DEGREES), BUT BEGINNING AT 250DEGREES THE PSI VS. TEMP. CURVES FOR ALL ALLOYS ALMOST COINCIDE EXCEPT OF THAT FOR THE 0.05PERCENT FERROCERIUM ALLOY THAT AT 400, 500, 600, AND 800DEGREES SHOWS PSI EQUALS 20, 8, 45, AND 32PERCENT, RESP., COMPARED TO SIMILIAR TO 5, 0-5, 0-5 AND 5-10PERCENT FOR OTHER ALLOYS. THE RESULTS OBTAINED FOR THE LS 59-1 BRASS SHOWED THAT MOST EFFECTIVE ARE THE FERROCERIUM ADDNS. TOGETHER WITH THOSE OF NI, SI, AND MN. THIS ALLOY CONTG. FERROCERIUM 0.15, NI 0.35, SI 0.11, AND MN 0.18PERCENT SHOWED TWO PLASTICITY MAX. OF 700 AND 850DEGREES (DELTA EQUALS 190 AND 170PERCENT, RESP., AND PSI EQUALS 100PERCENT). NEVERTHELESS, ITS PLASTICITY AT 20-500DEGREES, SIMILAR TO THAT OF THE LS 59-1 BRASS WITHOUT ADDNS., IS RATHER LOW (PSI 20-40PERCENT) AND SHOWED MIN. (20PERCENT) AT 100 AND 300DEGREES.

UNCLASSIFIED

USSR

URETSKIY, Ya. S., CHABDAROV, SH. M., SAPAROV, V. I., and LEONT'YEV, V. V.

UDC 62-752;621.317.757

"Controlling the Spectrum of Simulated Random Vibrations"

Translation: The deficiencies of industrially manufactured series-operation
spectral analyzers used for vibration tests are investigated. The following
conclusions are drawn: the equipment used permits measurement of spectra of
relatively simple form; in the presence of a dip in the spectral characteris-
tic, the spectral analyzers do not permit reliable measurements of its
parameters. The deeper and better quality the dip, the higher the measure-
ment error. There are 3 illustrations and a 5-entry bibliography.

1/1

UNCLASSIFIED   PROCESSING DATE--11DEC70

1/2   043
TITLE--CERAMIC HEAT TRANSFER AGENTS FOR CHEMICAL PROCESSES -U-

AUTHOR-(02)-YUZVAK, D. I., SAPAROV, V. V.

COUNTRY OF INFO--USSR

SOURCE--GER. OFFEN. 1,805,616

DATE PUBLISHED--21MAY70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--HEAT TRANSFER, PYROLYSIS, HYDROCARBON SYNTHESIS, ETHYLENE,
PROPYLENE, ACETYLENE, CHROMIUM OXIDE, ALUMINUM OXIDE, SILICON DIOXIDE,
IRON OXIDE, CHEMICAL PATENT, CERAMIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1433   STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0138443
                              UNCLASSIFIED

CIRC ACCESSION NO--AA0133443
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CERAMIC GRANULATED HEAT
  CARRIER, E.G., FOR THE PYROLYSIS OF HYDROCARBONS IN THE MANUF. OF
  ETHYLENE, PROPYLENE, AND ACETYLENE, CONSISTS OF THE OXIDES OF AL, SI,
  CR, AND FE, PREFERABLY IN THE RELATION AL OXIDES 75-80, SI OXIDES 5-7,
  CR OXIDES 5-10, FE OXIDES 2-3 WT. PERCENT. IN THE MANUF. OF THE
  MATERIAL, POWD. CR ORE IS INTRODUCED INTO A POWD. MIXT. OF ALUMINA,
  REFRACTORY CLAY, AND BINDER E.G. NA AND (OR) NA SILICATE SOLN.
  ALTERNATIVELY, THE MIXT. OF POWD. ALUMINA, REFRACTORY CLAY, AND CR ORE
  IS MOISTENED WITH SIMILAR TO ONE THIRD OF ITS MASS AL SULFATE SOLN.,
  THEN SIMILAR TO TWO THIRD OF THE DRY MASS SULFITE WASTE LIQUOR IS ADDED,
  AND THE MIXT. IS GRANULATED.   FACILITY: BOGDANOVICH REFRACTORY
  MATERIAL PLANT.

Microelectronics

USSR   UDC   621.3.049.75

VORONA, A. V., MATVEYCHUK, A. I., SAPEGIN, F. M.

"A Holder for a Printed-Circuit Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 2, Jan 71, Author's Certificate No 290495, division H, filed 1 Apr 68,
published 22 Dec 70, p 170

Translation: This Author's Certificate introduces a holder for printed
circuit bases. The device contains a base and a spring. As a distinguish-
ing feature of the patent, the mass of the holder is reduced and access
is provided to both sides of the printed-circuit base. The base of the
holder is made in the form of a split ring equipped with an inner triangular
channel for the printed-circuit base, and an outer channel of any shape
which accommodates a spring-loaded split ring.

UDC 576.85

USSR

SAPEGINA, V. F. and DOKUCHAYEVA, Yu. I., Biological Institute, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Ability of Ixodes pavlovskyi Ticks to Transmit Tick-Borne Encephalitis Virus under Experimental Conditions"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 10, No 2, Aug 70, p 152

Abstract: Larvae of Ixodes pavlovskyi ticks were attached for feeding to white mice infected with a 10% brain suspension of tick-borne encephalitis virus (Sof'in strain). The feeding was interrupted by the death of the infected animals. On the 1-8th (group 1), 10-12th (group 2), and 13-16th (group 3) days after the interruption, the unsatiated larvae were attached to healthy white mice for additional feeding. Group 1 larvae readily attached themselves to the new hosts; not all of group 2 attached themselves to the new mice, and about 70% of group 3 larvae perished. Examination of the new host mice to which group 1 larvae were attached revealed typical clinical symptoms of tick-borne encephalitis. No such symptoms were detected in the mice to which groups 2 and 3 of the larvae had been attached, although the presence of antibodies to tick-borne

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encephalitis virus was established. To determine the transphase ability of ticks to transmit the virus Ixodes pavlovskyi larvae were fed on mice with tick-borne encephalitis during viremia and kept through the winter at a temper- ature of 2°C. In May of the following year, after the larvae was transformed into nymphs, nymphs were attached for feeding to healthy white mice. Subsequent examination of the mice failed to show any symptoms of the disease. Positive results were obtained when, 15-20 days after feeding, suspensions of satiated nymphs were used to infect mice. These results indicate that transphase trans- mission of the virus occurs.

2/2

UDC 599.32:619

USSR

LEONOV, Yu. A., KHARITONOVA, N. N., and SAPEGINA, V. F., Biological Institute
Siberian Department Academy of Sciences USSR, Novosibirsk

"The Red Cheeked Suslik and Its Significance in the Epizootiology of Omsk
Hemorrhagic Fever"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk, SSSR, Seriya Biolog-
icheskikh Nauk, Vol 10, No 2, Aug 70, pp 126-129

Abstract: A study was made of the habitat and distribution of the red-cheeked
suslik in Western Siberia and its role in the epizootiology of Omsk (epidemic)
hemorrhagic fever. Studies begun in 1966 established a high population density
of these rodents in Karasukskiy Rayon of Novosibirskaya Oblast, where the
oblast borders on Kazakhstan and Altay Kray, an area long known as a natural
focus of epidemic hemorrhagic fever. The suslik usually nests in virgin steppe
lands, near watersheds, and on the periphery of birch-aspen groves. Serologi-
cal studies of susliks captured in this area showed the presence of antibodies
to the virus of Omsk hemorrhagic fever, which indicates the circulation of the
virus in the rodent population. The communicable character of the disease is

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USSR

LEONOV, Yu. A., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk, SSSR, Seriya Biologicheskikh Nauk, Vol 10, No 2, Aug 70, pp 126-129

established. Ectoparasites (mainly Gamasidae) which live on susliks and infest suslik nests in mass numbers were gahtered on the assumption that some species of these parasites may serve as carriers of the virus of Omsk hemorrhagic fever. The investigations have as yet failed to establish a definite connection between the epizootoliogy of the disease and the presence of the suslik and its ecto-parasities. Nevertheless, the large concentration of red-cheeked suslik in the area, the considerable immunity of these rodents to the virus of Omsk hemorrhagic fever, and the abundance of ectoparasites which may be assumed to be virus carriers indicate that the suslik may play an important role in the epizootiology of this disease.

2/2

USSR ·

IL'INSKIY, A. I., PALATNIK, L. S., and SAPELKIN, N. P.

"Creep and Durability of Highly Stable Copper Films"

Leningrad, Fizika tverdogo tela, No 11, 1973, pp 3196-3201

Abstract: The equipment and methods of an experimental inquiry into the creep and durability of copper films, obtained by condensation in a vacuum, are considered in this paper. The films tested were 25 ± 5 μ thick, and were prepared in a vacuum of about $5\cdot10^{-5}$ mm Hg by the method of crucible vaporization of copper with a purity of 99.7%. For these experiments, special apparatus was used; a diagram of this equipment is given. Curves for the durability of the films as a function of the temperature are given along with a table of the effect of temperatures of 100, 20, 0, and -196^0 C on the durability of films under a stress of 80 kg/mm^2. A second table shows the effect of the stress on the rate of creep. The effects of annealing at temperatures of 250^0 C are also considered. It was found that the purity of the films markedly affects the creep and durability characteristics. The authors thank V. I. Betekhtin for his advice.
1/1

USSR

SAPEL'NIKOV, A. N. and STAROSEL'SKIY, V. I.

UDC: 621.380

"Electronic Model of a Gunn Diode"

Abstract: Dissatisfied with the deficiencies of the devices simulating Gunn diodes described in earlier papers, the authors of this brief communication list those deficiencies and propose their own model. A block diagram of the setup as well as a complete schematic is given, and a plot is made of the characteristic curves for the block modeling the volt-ampere characteristic of the domain. The authors caution that this model, like those of the earlier papers, does not take into account the nonlinearity of the domain capacitance because of the complexities involved in the simulation of a nonlinear capacitance.

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USSR

UDC 621.374.335.2

STAROSEL'SKIY,V.I., SAPEL'NIKOV, A.N., Moscow Engineering and Physics Institute

"Gunn Diode Comparison Circuit"

USSR Author's Certificate No 304701, filed 25 February 1970, published 24 May 1971 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,Tovarnyye Znaki, No 17, 1971, No H 03k 19/24)

Translation: A Gunn diode comparison circuit with one output and two or more input diodes connected in parallel and loaded by a common resistor is introduced. It is distinguished by the fact that in order to increase the operating range, to reduce the requirements on the tolerances on the diode parameters and improve the speed, part of the surface of the input diodes is coated with a dielectric with a high dielectric constant, for example, $BaTiO_3$.

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USSR

UDC 669.15'24'295--
--194:620.183

SAVITSKIY, Ye. M., POPOV, V. F., SHMATKO, M. N., and
SAPEL'NIKOV, P. P., Moscow, Chelyabinsk

"The Effect of Cerium and Niobium on the Structure of
Kh25T Steel"

Moscow, Izvestiya Akademii Nauk SSSR, No 5, 1973,
pp 145-149

Abstract: The optical metallography of specimens of Kh25T steel
from experimental and industrial melts makes possible the unco-
vering of the difference in the development of excess phases on
grain boundaries of the cast metal. Microadditions of ferroce-
rium and ferroniobium favor a coagulation of separations. Semi-
transparent film separations of chromium carbides ($Cr_{23}C_6$) in
common cast steel are arranged on grain boundaries in the form
of continuous separations, they occupy a 5-10 times greater sur-
face than in the experimental steel. Their quantity in the metal
with ferrocerium and ferroniobium is much lower, and they are sepa-

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USSR

rated and distributed more uniformly in the matrix. Microalloying with ferrocerium and ferroniobium favored a higher coagulation of chromous carbides, if compared with ferrocerium. A substantial difference in the distribution of chromium carbides in fractures of the metal of pipes before and after thermal treatment was uncovered. Microalloying of steel with ferrocerium changes completely the structure of the investigated steel after forging: the grains were highly elongated and showed a fine-fragmented structure. The relation was established between the change of the structure and the increase of plastic characteristics of high-alloy steel of ferrite type. Three figures, one table, ten bibliographic references.

2/2

USSR
                            UDC: 621.372.62.01

KOL'TSOV, A. A., SAPEL'NIKOV, V. M.

"Structures of Phase Shifters"

V sb. Elektroizmerit. tsepi i ustroystva kontrolya i avtomatiz. neft. prom-sti (Electric Measuring Circuits and Devices for Inspection and Auto- mation in the Petroleum Industry—collection of works), Ufa, 1970, pp 156-165 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A116)

Translation: The authors describe multipoles which provide continuous or discrete regulation of the phase shift between given currents or voltages of input and output circuits. Consideration is given to an L-shaped voltage divider which is taken as the fundamental circuit. The properties of paral- lel, cascade and series connected dividers are discussed. Dividers are described in which the outputs are connected in parallel and regulation is present. Bibliography of 21 titles. L. Ya.

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- 29 -

USSR   UDC: 621.372.62.01

KOL'TSOV, A. A., SAPEL'NIKOV, V. M.

"Structures of Phase Shifters"

Translation: The authors describe multipoles which provide continuous or discrete regulation of the phase shift between given currents or voltages of input and output circuits. Consideration is given to an L-shaped voltage divider which is taken as the fundamental circuit. The properties of parallel, cascade and series connected dividers are discussed. Dividers are described in which the outputs are connected in parallel and regulation is present. Bibliography of 21 titles. L. Ya.

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UNCLASSIFIED   PROCESSING DATE--02OCT70

TITLE--PULMONARY CIRCULATION IN NONSPECIFIC DISEASES OF THE RESPIRATORY ORGANS ACCORDING TO RHEOGRAPHIC DATA -U-

AUTHOR--SAPEROV, V.N.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ZRKHIV, 1970, VOL 42, NR 3, PP 58-61

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PNEUMONIA, BLOOD CIRCULATION, ELECTROCARDIOGRAPHY, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0322   STEP NO--UR/0504/70/042/003/0059/0061

CIRC ACCESSION NO--AP0102784
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0102784
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF RHEOGRAPHY WAS USED
   TO STUDY THE PULMONARY CIRCULATION IN 40 HEALTHY INDIVIDUALS AND IN 146
   PATIENTS WITH NONSPECIFIC DISEASES OF THE LUNGS. IN CHRONIC PNEUMONIA
   AND BRONCHIAL ASTHMA THE AUTHOR REVEALED A DEFORMATION OF THE SYSTOLIC
   WAVE, AN INCREASE OF THE AMPLITUDE OF THE DYASTOLIC WAVE, A DROP IN THE
   RHEOGRAPHIC INDEX, PROLONGATION OF THE INTERVALS FROM THE WAVE Q OF THE
   ELECTROCARDIOGRAM AND THE I TONE OF THE PHONOCARDIOGRAM TO THE BEGINNING
   OF THE ANACROTE OF THE RHEGRAM AND THE PERIOD OF THE MAXIMUM HYPEREMIA.
   THE MENTIONED CHANGES GREW WITN AN INCREASE OF THE DEGREE OF CARDIO
   PULMONARY INSUFFICIENCY.   IN PATIENTS WITH CHRONIC AND FOCAL PNEUMONIA
   WITH RESTRICTED UNILATERAL AFFECTION THE LENGTHENING OF THE PERIOD OF
   MAXIMUM HYPEREMIA WERE MOSTLY CHARECTERISTIC. CHANGES IN THE RHEOGRAM
   IN DIFFERENT DISEASES WERE OF A NONSPECIFIC NATURE REFLECTING THE DEGREE
   OF MORPHOLOGICAL CHANGES IN THE LUNGS AND PULMONARY HYPERTENSION.

UNCLASSIFIED

USSR

ALAD'YEV, I. T., VOSKRESENSKIY, K. D., GUKOV, G. P., SAPEROV, YE. V.,
FARDZINOV, V. K.

"Device for Extracting Geothermal Energy"

USSR Author's Certificate No 322084 (from Otkrytiya, Izobreteniya, Promyshlen-
nyye obravtsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models,
Trademarks), No 43, 1973, page 213)

Translation: (1) This device for extracting geothermal energy from hot rock
crushed, for example, by an underground nuclear explosion and containing the
basic drill stem and open-bottom working casing set to a flooded horizon is
distinguished by the fact that in order to increase the reliability it reduced
the time for putting the unit into operation, the operating column is made
perforated above the lower mark of the stem and it is equipped in the perforated
section with discharge channels, but inside the operating column below the
perforated section a heat exchanger has been installed for tapping the geothermal
heat.

    (2) This is a device according to item 1 distinguished by the fact that
the operating stem is executed with perforations in the lower section.
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1/2   010   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--NUCLEON INTERACTION AMPLITUDE IN INFINITE NUCLEAR MATTER -U-

AUTHOR-(02)-SAPERSHTEYN, E.YE., KHODEL, V.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(4), 760-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEON INTERACTION, SCATTERING AMPLITUDE, PARITY PRINCIPLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1936   STEP NO--UR/0367/70/011/004/0760/0769

CIRC ACCESSION NO--AP0120579
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0120579

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE N SCATTERING
AMPLITUDE IN INFINITE MATTER BY PLAYING THE ROLE OF UNIVERSAL
INTERACTION BETWEEN QUASI PARTICLES IN NUCLEUS, ARE ANALYZED.   OWING TO
THE ABSENCE OF GALILEAN INVARIANCE, THE NO. OF INDEPENDENT INVARIANT
SCATTERING AMPLITUDES IN MATTER INCREASES. GENERAL EXPRESSION FOR THE
QUASI PARTICLE SCATTERING AMPLITUDE NEAR THE FERMI SURFACE IS DERIVED,
CONTG. 8 (INSTEAD OF 5 IN VACUUM) INVARIANT AMPLITUDES WHICH ARE ANAL.
FUNCTIONS OF KINEMATIC INVARIANTS OF THE PROBLEM.   GENERAL FORM OF THE
N INTERACTION AMPLITUDE IN NUCLEAR MATTER VIOLATING PARITY, IS OBTAINED.
STABILITY CONDITIONS OF NUCLEAR MATTER UNDER LONG RANGE COLLECTIVE
EXCITATIONS AND COOPER PAIRING, ARE STUDIED.   FACILITY: INST.
AT. ENERG. IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2   011   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--CALCULATING THE PROPERTIES OF LOW LYING STATES OF SPHERICAL NUCLEI
-U-
AUTHOR-(02)-SAPERSHTEYN, E.YE., KHODEL, V.A.

CCUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 322-33

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR ENERGY LEVEL, NUCLEAR SHELL MODEL, CALCULATION,
SCATTERING AMPLITUDE, PARTICLE INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1047   STEP NO--UR/0367/70/011/002/0322/0333

CIRC ACCESSION NO--AP0110737
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0110737
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, PROPERTIES ARE CONSIDERED OF LOW
  LYING STATES HOING TO INTERACTIONS OF QUASI PARTICLES IN UNFILLED SHELLS
  OF SPHERICAL NUCLEI. AN EQUATION IS OBTAINED EXPRESSING THE AMPLITUDE
  OF PAIR QUASI PARTICLE INTERACTION T IN TERMS OF THE UNIVERSAL AMPLITUDE
  G PRIME U OF QUASI PARTICLE SCATTERING TO ANY ANGLE IN THE INFINITE
  NUCLEAR MATTER. G PRIME U CONTAINS UNIVERSAL LONG RANGE INTERACTION IN
  ADDN. TO LOCAL INTERACTION PARTS. THE EQUATION FOR THE EFFECTIVE FIELD
  ACTING UPON THE QUASI PARTICLES IS TRANSFORMED IN SUCH A WAY THAT THE
  AMPLITUDE G PRIME U ALSO ENTERS AS A UNIVERSAL INTERACTION. PROBLEMS OF
  PARAMETRIZATION OF G PRIME U ARE ALSO DISCUSSED.   FACILITY:
  INST. AT. ENERG. IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2   013   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--PHOTOCHEMILUMINESCENCE OF GLYCYLTRYPTOPHAN SOLUTIONS.
 IDENTIFICATION OF THE LUMINESCENCE CENTER -U-
AUTHOR-(02)-SAPEZHINSKIY, I.I., DONTSOVA, YE.G.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(4), 838-41

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CHEMILUMINESCENCE, SPECTRUM, TRYPTOPHAN, AROMATIC KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605021/C02 STEP NO--UR/0020/70/192/004/0838/0841

CIRC ACCESSION NO--AT0141073
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0141073
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHEMILUMINESCENCE SPECTRA OF TITLE
  SOLNS. WERE REPORTED GRAPHICALLY. THE CENTER OF SUCH LUMINESCENCE IS A
  MOL. OF AROMATIC KETONE OF THE KYNURENIN TYPE.   FACILITY: INST.
  KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

SAPEZHINSKIY, I. I., and DONTSOVA, YE. G., Institute of Chemical Physics, Academy of Sciences USSR, Moscow, Academy of Sciences USSR

"Photochemiluminescence of Solutions of Glycyltriptophan, Identification of the Luminescence Center"

Abstract: It was suggested in earlier work by Sapezhinskiy that the luminescence center (emitter) in the photochemiluminescence of glycyltryptophan solutions must be formylkynurenine, a product of the disproportionation of peroxide radicals that are formed in the oxidation of the peptide. A study was conducted to verify the correctness of the assumption to that effect. Comparison of data on the chemiluminescence yield and the accumulation of kynurenine acting as a luminescence center tended to support this assumption. On addition of cysteine, which acts as an acceptor of peroxide radicals formed in the oxidation of glycyltryptophan, the intensity of luminescence dropped abruptly and the rate of accumulation of kynurenine decreased in proportion to it. Comparison of the kinetic curves of the increase of chemiluminescence and the increase, on excitation with the wavelength 500 mμ, of the optical density of

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luminescence at 365 mμ, the maximum of luminescence associated with kynurenine, indicated that the chemiluminescence was indeed due to kynurenine or a compound related to it, presumably formylkynurenine. The authors thank N. M. EMANUEL' for his interest in the work.

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94960z Photochemiluminescence of glycyltryptophan solutions. Effect of pH on the intensity and yields of chemiluminescence. Sapezhinskii, I. I.; Dontsova, E. G. (Inst. Khim. Fiz., Moscow, USSR). Khim. Fys. Energ. 1970, 4(1), 77-80 (Russ). The pH dependence of photochemiluminescence of $10^{-4}M$ glycyltryptophan solns. was analyzed. The intensity is max. at pH 8.5-10. The formation of free radicals ($\sim 5 \times 10^{-3}$ radicals/quantum) has little pH dependence, while the luminescence yield ($\sim 5 \times 10^{-6}$ quantum/radical) is strongly pH dependent for the peptide.

B. J. Ikeler

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USSR

SAPFIROV, S. G.

"Phase AFC Pulse Systems"

Abstract: A method is considered for investigating systems of
pulsed phase automatic frequency control systems. It is explained
using the example of a pulse phase frequency multiplier system,
the block diagram for which is given, which differs from the usual
phased AFC system by the use of a forming circuit converting sinu-
soidal voltages into short pulses, a pulse phase detector instead
of a phase detector, and auxiliary memory circuits which fix the
detector output voltage in the gap between two pulses. Short
pulses whose amplitude and polarity are determined by the input
voltage relationships appear at the detector output, while step
voltages with a cosinoidal envelope appear at the output of the
memory circuit. A relationship for the spectrum at the detector
output is analytically found and plotted.

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USSR

SAPGIR, A.I.

UDC 621.391.82:621.396.259

"Statistical Calculation Of The Computability Of Tropospheric And Satellite Radio Communication Lines"

Elektrosvyaz', No 7, July 1972, pp 48-51

Abstract: The paper considers some special features of the mutual effect of a communication satellite and long-distance tropospheric propagation radio lines operating in a common frequency range, and a method is proposed for a statistical evaluation of the mutual interference developing during this. The case of stationary and nonstationary satellites are considered separately. The author thanks S.V. Borodich for extremly fruitful conversations, one of the results of which is the appearance of the present work. 6 ill. 4 ref. Received by editors, 14 Apr 1971.

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USSR

SAPGIR, A. I.

"Probability Estimate of the Level of the Fringe Radiation of Antennas"

Abstract: The author studies the probability structure of the fringe radiation of highly-directional antennas. It is shown radiation field of an antenna in the side lobe sector can be approximated by a logarithmically-normal law. The author thanks Yu. A. Chernov for contributing original material used in this article. The author also thanks V. G. Yampol'skiy for his assistance in working on this article. Original article: three figures, 10 formulas, and one bibliographic entry.

1/1

S.APIN, M.R.

JPRS 57493
13 747-712

UDC: 378.661:553.286.5

ACHIEVEMENTS AND PLANS OF ADVANCED TRAINING OF MEDICAL SCHOOL INSTRUCTORS (ACCORDING TO COMMENTS AND SUGGESTIONS OF STUDENTS ON THE FACULTY OF ADVANCED INSTRUCTOR TRAINING, MOSCOW MEDICAL INSTITUTE IMENI I.M. SECHENOV)

[Article by M.R. Sapin, A.L. Grebenev, faculty of Advanced Training (deans: Professor M.R. Sapin, First Moscow Medical Institute imeni I.M. Sechenov (head: Professor M.R. Rusin, corresponding member of the USSR Academy of Medical Sciences); Moscow, Sovetskoye Zdravookhraneniye, Russian, No 10, 1972, submitted 25 May 1972, pp 48-51]

The decisions of the 24th Congress of the CPSU outlined future improvement of higher education and development of medical science in the nation. One of the effective means of obtaining success in this direction is the system of advanced training for higher school instructors.

The faculty of advanced instructor training (FPK) was founded at the First Moscow Medical Institute imeni I.M. Sechenov in 1968. As a result of considerable organizational and methodological work three chief directions were developed and clearly defined on the faculty for the participating instructors: 1) work to improve pedagogic skill, 2) advancing the qualifications of the instructor as a highly competent specialist in his field, and 3) to acquaint the class with the latest investigative techniques and scientific directions in their "own" as well as allied and related chairs. As shown by the experience of this faculty, organization of teaching and methodological, as well as scientific work in these directions has been completely justified.

Since 1968, about 2,000 instructors from different medical VUZ in the nation underwent advanced training on this faculty. Improving their work continuously, the administration of the faculty always takes into consideration the comments and suggestions made by those attending the classes. Some of them deserve to be published, since they are of interest to all instructors or else stimulate discussion.

The FPK dean's office sent out 500 questionnaires to graduates from the faculty. Instructors were very willing to respond to the office's invitation to participate in discussing the work of the faculty and sent back many individual and group letters in reply.

USSR

RAKHIMOV, Ya. A., SAPIN, M. R., and ETINGEN, L. Ye., Tadzhik State Medical Institute imeni Abaili Ibn-Sino

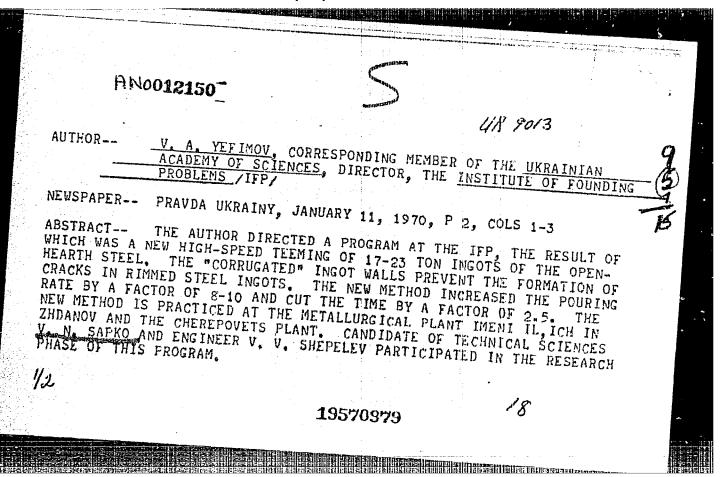"Morphology of the Adrenal Glands of Dogs Under High-Altitude Conditions"

Abstract: A study was conducted in which 150 dogs were kept at the Anzob Pass (elevation, 3,375 m) for 1 to 60 days. Controls were kept in Dushanbe (elevation, 800 m). The climatic and geographic conditions at Anzob had a definite effect on the adrenal cortex of experimental dogs. The principal change noted was in blood circulation, as manifested by plethora, hemorrhages, disturbances in the permeability of the blood vessel walls, and edema. Granular dystrophy occurred in the zona glomerulosa, with occasional necrosis of individual cells. In the first few days at high altitude, the DNA in adrenal cells and the RNA in individual glomerular and fasicular zones were lowered. The DNA level returned to normal in 3-7 days. Fats were initially lowered to some extent and after 15-30 days became markedly low. During this period the more important shifts associated with adaptation of the organism to high altitude took place, accompanied by a sharp increase in the functional activity of the adrenal cortex.

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AUTHOR--   V. A. YEFIMOV, CORRESPONDING MEMBER OF THE UKRAINIAN
            ACADEMY OF SCIENCES, DIRECTOR, THE INSTITUTE OF FOUNDING
            PROBLEMS /IFP/

NEWSPAPER-- PRAVDA UKRAINY, JANUARY 11, 1970, P 2, COLS 1-3

ABSTRACT--   THE AUTHOR DIRECTED A PROGRAM AT THE IFP, THE RESULT OF
WHICH WAS A NEW HIGH-SPEED TEEMING OF 17-23 TON INGOTS OF THE OPEN-
HEARTH STEEL. THE "CORRUGATED" INGOT WALLS PREVENT THE FORMATION OF
CRACKS IN RIMMED STEEL INGOTS. THE NEW METHOD INCREASED THE POURING
RATE BY A FACTOR OF 8-10 AND CUT THE TIME BY A FACTOR OF 2.5. THE
NEW METHOD IS PRACTICED AT THE METALLURGICAL PLANT IMENI IL'ICH IN
ZHDANOV AND THE CHEREPOVETS PLANT. CANDIDATE OF TECHNICAL SCIENCES
V. N. SAFKO AND ENGINEER V. V. SHEPELEV PARTICIPATED IN THE RESEARCH
PHASE OF THIS PROGRAM.

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AN0012150

THE INSTITUTE ALSO CONDUCTED RESEARCH INTO UNDER-SLAG POURING OF
STEEL /ENGINEER V. P. OSIPOV, A DEPARTMENT HEAD, CANDIDATE OF
TECHNICAL SCIENCES N. YA. YASHCHUK, ET. AL./ AND COLLABORATED WITH
PATON'S INSTITUTE OF ELECTRIC WELDING IN DEVELOPING THE PRODUCTION
TECHNOLOGY OF THIS PROCESS. AS A RESULT, THE PRODUCTION TIME HAS
BEEN REDUCED TO ONE-TENTH, AND THE AMOUNT OF REJECTS BY A FACTOR OF
2-32, DEPENDING UPON THE GRADE OF STEEL.

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USSR

UDC 615.471:616.74-073.97

CHOBOTAS, M. A., and SAPLINSKAS, I. S., Institute of Experimental and Clinical
Medicine, Ministry of Public Health, Lithuanian SSR, and Vilnyus University imeni
V. Kapsukas

"An Attachment to the Electromyograph for Investigation of Dynamic and State Efforts
of Muscles"

Moscow, Byulleten' Eksperimentalnoy Biyologii i Meditsiny, Vol 70, No 7, Jul 70,
pp 121-122.

Abstract: A dynamographic-tensiometric attachment for an electromyograph is pro-
posed for use in investigations of dynamic and static efforts of muscles. The
device permits simultaneous registration of the electromyogram and dynamogram of
the muscles studied on the same film.

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USSR

KONTOROVICH, V. M. and SAPOGCVA, N. A.

"Exactly Solvable Model of the Kinetic Equation and Sound Absorption in Metals"

Leningrad, Fizika Tverdogo Tela, vol 15, No 3, 1973, pp 689-694

Abstract: In connection with the propagation of sound waves along the axis of
a cylindrical Fermi surface, the authors consider the limiting case of disper-
sion, in impurities, in which the kinetic equation can be given an exact solu-
tion in a metal of arbitrary anisotropy. It is assumed, in this theoretical
investigation, that the radius of action of the forces is limitedly small, much
smaller than the interatomic distance, the deBroglie wavelength of the electron,
and the distance at which the amplitude of the Bloch function varies in ampli-
tude. The interaction of the electrons and the sound can then be described by
the δ function potential at which the integral operator of the kinetic equation
becomes degenerate and reduces to an algebraic operator. The solution to this
equation is expressed through the Green function of the differential equation
involving the relaxation time. In the second part of this article, the solu-
tion is applied to an investigation of the absorption and dispersion of the
sound waves.

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LINNIK, V. P., Academician, BRYANSKAYA, G. M., and SAPOTNITSKAYA, E. A.

"Interferometer for the Study of Laser Wave Front"

Abstract: A modernized interferometer used for the study of laser emission
wave front is described, and a schematic diagram of the experimental setup
is presented. Investigation of the wave front was carried out on a glass
10 cm in diameter activated by neodium. A long focal length objective
(F = 200 mm) disposed at double the focal length from the laser end, produced
the image of this end in the plane of observation, while a mirror split the
laser flash, directing half of it toward a short focal length objective
(F = 30 mm), after which the spherical wave was recorded on the same photo-
film. Thus a superposition of two waves occurred in the plane of observa-
tion, the one carrying the image of the laser end 10 mm in diameter, having
the specific properties of the studied laser emission, the other a small
section (1/6 of the diverging wave diameter), which in the first approxi-
mation can be considered as reference. The experimental technique is
described in detail, and examples of interference bands of two lasers are
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USSR

LINNIK, V. P., et al., Optiko-mekhanicheskaya promyshlennost' No 11, Nov 71, pp 27-29

presented. Investigations carried out with this interferometer show that every laser has its own individual emission wave front, and that the interferometer may be used for studying wave fronts of lasers with various wave lengths.

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1/2   020   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--IMPORTANT FACTOR IN REDUCING POLLUTION OF NATURAL WATERS, BY SPENT
  PULPING LIQUORS -U-
AUTHOR-(02)-IGNATYEVA, O.I., SAPOTNITSKIY, S.A.

COUNTRY OF INFO--USSR

SOURCE--BUM. PROM. 1970, (5), 9-11

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BIOLOGICAL AND MEDICAL
  SCIENCES
TOPIC TAGS--PAPER INDUSTRY, WATER POLLUTION, SULFITE, YEAST, CONTINUOUS
  CULTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0990   STEP NO--UR/0329/70/000/005/0009/0011

CIRC ACCESSION NO--AP0134704
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0134704   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPENT LIQUOR FROM HOT ALKALI REFINING OF PULP IS NEXT TO SPENT SULFITE LIQUOR (I) AS A WATER POLLUTANT, ITS BOD SUBS BEING ABOUT 4 TONS-100 TONS PULP. THE SPENT REFINING LIQUOR CAN BE USED FOR THE PREPN. OF SULFITE COOKING LIQUOR. ANOTHER MEANS FOR ITS UTILIZATION AND REDN. OF WATER POLLUTION IS ITS JOINT BIOL. PROCESSING WITH THE I, IN WHICH THE ORG. ACIDS IT CONTAINS ARE UTILIZED BY YEAST, WHILE THE ALKALI NEUTRALIZES THE I. THE BEST CONDITIONS FOR SUCH JOINT PROCESSING WERE STUDIED ON MODEL SOLNS. OF BOTH SPENT LIQUORS WHICH, AFTER MIXING AND ADDN. OF SUITABLE NUTRIENT SALTS, WERE USED FOR CULTIVATION OF TORULOPSIS UTILIS YEAST. THE YIELD OF YEAST CELLS COMPARED WITH CONTROL MEDIUM ("MODEL" I NEUTRALIZED WITH NAOH TO THE SAME PH OF 5.6), WAS SIMILAR TO 40PERCENT HIGHER, AND AT LEAST 45PERCENT OF THE ACID IN THE MEDIUM WAS UTILIZED. THESE RESULTS WERE CONFIRMED IN LAB. CULTIVATION OF YEAST IN A MEDIUM CONSISTING OF I FROM LAB. NA BASE SULFITE COOKS OF SPRUCEWOOD, SPEN LIQUOR FROM LAB. HOT ALKALI REFINING OF PULP, AND WATER IN A 1:1:1 RATIO. THE PH OF THE MEDIUM WAS 5.4-5.6. THE VOLATILE ACIDS (MAINLY HOAC) OPRESENT IN THE MEDIUM WERE UTILIZED BY YEAST TO ABOUT THE SAME EXTENT AS THE NONVOLATILE ORG. ACIDS, AND THE PROTEIN AND ASH CONTENT OF THE CELLS WAS THE SAME AS IN CELLS FROM THE CONTROL MEDIUM.   FACILITY: LENINGRAD. ELSOTEKH. AKAD. IM. KIROVA, LENINGRAD, USSR.

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USSR   UDC 543.812.2:065.63.048

NEMIROV, M. S., SAPOZHNIKOV, A. A.

"Estimate of Error of Determination of Water in Petroleum by Azeotropic Distillation"

Translation: The method of azeotropic distillation for determination of water in petroleum (GOST 2477-65) does not allow rapid and continuous determination of the quantitative content of water in specimens. In 1969, GOST 14203-60 was developed and approved for a dielcometric moisture meter for continuous measurement of the water content in a stream of oil. In order to determine the possible divergences between the results of analysis by the analytic method of GOST 2477-65 and the dielcometric method, the true error (E) of determination of moisture in petroleum according to GOST 2477-65 was estimated in the range of moisture contents of 0 to 60%, with subsequent processing of the results by methods of mathematical statistics. Analyses were performed for 19 specimens of artificially prepared emulsion. For each specimen, 10 parallel determination were performed over the course of a year, gradually increasing the moisture content of the specimens, using 8 apparatus

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Nemirov, M. S., Sapozhnikov, A. A., Tr. Metrol. In-tov SSSR, 1972, No 136(196), pp 38-43.

provided by the manufacturer. Analysis of all 10 specimens with moisture content of 0.03% showed that in all cases, only traces of water were found in the receiver trap. Reliable determination of moisture can be performed in the specimens with moisture contents of 0.1 to 60%. The results of the experiments performed were used to calculate the limiting systematic component of the limiting relative E, not considering the limiting systematic E of traps, since it is less than the other component by an order of magnitude. The results of the experiments performed were used to construct curves of the influence of limiting systematic E on limiting relative E and divergence of the probabilis- tically based E of the method produced experimentally with extensive static material on E calculated from the standard. 2 figures, 5 biblio. refs.

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USSR

SAPOZHENKO, A. A.

"The Complexity of Disjunctive Normal Forms Produced Using a Gradient Algorithm"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 21, Novosibirsk, 1972, pp 62-71 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V427, by V. Khrapchenko).

Translation: It is proven that for almost all Boolean functions of n arguments, the number of conjunctions in the minimal d. n. f. asymptotically does not excees $2n/\ln n$. This estimate is a strenghtened version of the estimate of A. D. Korshunov [RZhMat, 1970, 11V323), if only slightly strengthened (by approximately 2.8 times), but its proof is significantly simpler and is distinguished by exceptional transparency. The proof is constructed so that yet another interesting fact is established in passing: for almost all Boolean functions, the d. n. f. produced by the simple method of the algorithm of swiftest descent also contain asymptotically not over $2n/\ln n$ conjunctions.

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UDC: 681.3.06:51

PODOBED, V. V., PODOBED, M. V., SAPOZHKOV, K. A.

"Organizing the Process of Designing a System for Automatic Control of a Dynamic Object"

Translation: The authors consider the structural-information scheme for the process of designing an automatic control system. The scheme includes the enumeration and sequence of the jobs to be carried out in automation, and references to some possible methods of carrying them out. The procedure is based on the assumption of optimality (in the sense of maximum economic effect) of the resultant solution (control computer scheme) for sequential execution of three main stages: the stage of mathematical formulation of the control job, the stage of synthesizing the algorithm for the control computer, and the stage of synthesizing the control computer diagram.

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USSR   UDC 62-504.1

BERSHADSKIY, A. M., SAPOZHKOV, K. A.

"Comparative Analysis of Various Discrete Circuits"

Novocherkassk, IVUZ Elektromekhanika, No 1, Jan 70, pp 19-22

Abstract: A method is considered for comparing the quality of
different discrete circuits using coefficients of quality and
significance with respect to the following parameters: percent
output of usable circuits, economy, reliability and overall
dimensions. The quality of the circuits being compared can be
checked differentially with respect to each parameter separately,
or integrally with respect to all parameters simultaneously.
The proposed comparison criteria account for the functional
relationships between such parameters of the circuit as logical
complexity, cost, speed, size, weight and reliability. These
criteria may be used for comparing circuits from the standpoint
of the user (equipment designer). The proposed method may be
used (as given or with slight modifications) for comparing any
identical circuits, elements, systems, subassemblies, modules,
etc. provided the objects to be compared are characterized by
the same parameters.
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Acc. Nr.: _____ A70046528_____

Ref. Code: UR C144

USSR

UDC 62-504.1

BERSHADSKIY, ALEKSANDR MOISEYEVICH, Junior Scientific Co-Worker of Penza
Polytechnical Institute, SAPOZHKOV, KONSTANTIN ANDREYEVICH, Professor,
Rector of Penza Polytechnical Institute

"Comparative Analysis of Different Discrete Systems"

Novocherkassk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika
(News of the Institutions of Higher Learning, Electromechanics), No 1,
1970, pp 19-22 (from Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekha-
nika, No 1, 1970, p 112)

Translation: This article contains a study of a procedure for comparing
the quality of various discrete systems using quality and significance
coefficients with respect to the following parameters: probability of
falling into the operating region, economicalness, reliability, dimensions.
The quality estimate of the compared systems can be checked differentially
with respect to each parameter individually or integrally with respect
to all parameters directly. There is a 3-entry bibliography.

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USSR   UDC   534.42

SAPOZHKOV, M. A.

"Problems of Formant Synthesis of Speech"

Moscow, Elektrosvyaz', No 3, 1971, pp 7-18

Abstract: The author studies some of the more pressing problems of formant syn-
thesis, particularly those which result in contradictory solutions. Recommendations
are also given on the use of various synthesizer circuits along with methods for
their realization. The shortcomings and advantages of multifilter synthesizers and
synthesizers with retunable ciruits are considered along with the possibility of
cascade and parallel connection of circuits. Low-frequency and high-frequency syn-
theses are compared. The results show the advantage of high-frequency synthesis.
One of the advantages of high-frequency synthesis is the small relative change in
the frequency of circuits within the limits of each of the formant ranges. This
results in simple units being used for controlling frequency change. Another ad-
vantage of high-frequency synthesis is that the equipment is not as bulky. In
the case of high-frequency synthesis, the initial oscillation phase of the circuit
turns out practically to be a random variable and not as "rigid" as in the case of
low-frequency synthesis. For this reason, speech synthesized at high-frequencies
sounds close to natural speech. The disadvantages of high-frequency synthesis and
higher instability of frequency and instability of the parameters of circuits and

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SAPOZHKOV, M. A., <u>Elektrosvyaz'</u>, No 3, 1971, pp 7-18

side band filters in the frequency converter. Nevertheless, this instability can
be reduced to a minimum. Original article: 14 figures, 16 formulas, and 12 bib-
liographic entries.

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